US Department of Education
Student Financial Assistance
SFA Modernization Partner

Deliverable # 69.1.2
ITA R3.0 Requirements Traceability Matrix

Version 1.0

ITA 3.0 - Requirements Traceability Matrix												
Num	Area	Application(s)	Category	Business Requirement and Description	Release	Priority	Reviewed	Implementation Note	Date Logged	ETC (in Days)	Assumptions	Resolution	Date Completed
100	Upgrade				3.0								
101	Operating Systems Upgrade	All	Operating Systems	The ITA 3.0 architecture shall support a 64 bit operating system.	3.0	M		The ITA team will need to research potential issues of upgrading to Sun 2.8 prior to porting all applications to the upgraded version. An upgrade from Sun 2.6 to 2.8 would allow for greater overall performance of all deployed applications. The 2.8 architecture makes use of the 64 bit architecture which will improve the performance speed of most applications. The ITA will verify that all ITA 3.0 products can be ported to version 2.8, currently version 3.05 of WAS cannot run on 2.8 of Sun	11/7/2001	5	This task would include researching and documenting products that can be upgraded. The ETC is only for investigation of the upgrade; it does not include test and implementation.		
102	User Login and WebSphere Application Server (WAS) Startup	All	Software - WAS	WebSphere Application Server (WAS) shall be started with a non-root user id. Administrators and application support people shall be able to stop, start, and configure WAS without having to use the root password.	3.0	L		The implementation of this requirement is dependent on the implementation of Lightweight Directory Access Protocol (LDAP). ITA 3.0 shall use LDAP to develop a mechanism that shall allow users to log in as non-root. This will require an upgrade to version 3.5 of WAS. WAS needs to be started using a non root id, so that application operations can control the application without the need of a system administrator.	11/7/2001	15	Assumption is that this is not part of the LDAP implementation. The work is to interface WAS to LDAP.		
103	Network Dispatcher Upgrade	All	Software - Network Dispatcher (ND)	The application shall use Custom Advisor scripts that monitor the web server, application servers, and Autonomy. These scripts shall provide e-mail notification when the web or application server fails.	3.0	M/L		Currently, CA Unicenter TNG (CSC monitoring product) is unreliable in providing outage information. This functionality will be provided by building scripts that use the Java Mail service to send out mail or pages. Currently the Network Dispatcher (ND) advisor will only detect outage of IHS and provide redirecting to the server that is up and running. The system will allow for fail over between the web server and app server. If one of the app servers goes down, the web server will redirect traffic to the app server that is up. ND Daemons need to be installed on web and app servers in order to provide feedback to Edge Server.	11/7/2001	15	Task includes design, build and document Custom Advisor Scripts for ND.		
104	NetworkDispatcher Upgrade	All	Software - NetworkDispatcher	The load balancer shall have the capability to provide intelligent content-based routing, proxy caching, and intelligent load balancing which will include server affinity, performance feedback from web servers to load balancer.	3.0	M		Upgrade from Network Dispatcher to Edge Server.	11/7/2001	10	This would include installation of Interactive Session Support and Content Based Routing with Web Traffic Express as well as documentation and testing.		
105	Load Balancing	All	Software - NetworkDispatcher	The system shall support true load balancing by making use of session and server affinity instead of sticky bits affinity.	3.0	M/L		ITA 3.0 shall implement this requirement by implementing ND load balancing. Currently only IP affinity is used which forces clients with the same IP address to the same Web Server (this is also known as sticky port).	11/7/2001	5	This task represents configuring and documenting rules for load balancing. Specifically, for configuring a client to further enhance load balancing.		
106	Informatica Upgrade		Software - Informatica	The ITA team shall upgrade Informatica from v1.7 to v5.1	3.0	M/L		The ITA team will need to conduct tests to ensure compatibility between SFA Legacy System and Informatica v5.1. A good implementation time frame will be in the January.	11/7/2001	15	No modification on legacy system that would affect existing configuration.		
107	Autonomy Upgrade	All	Software - Autonomy	The ITA team shall upgrade Autonomy (datamart software) DRE from v3.1 to v3.1.13.	3.0	M/L		Prior to upgrading Autonomy, the ITA team will need to test the new product version with WAS. ITA will also research how much the upgrade will cost.	11/7/2001	15	This task would not upgrade the use of Autonomy 2.1 by the existing applications (IFAP, Schools Portal, and Intranet).		
108	WAS Upgrade	All	Software - IBM WebSphere	The ITA team shall upgrade IBM WebSphere from v3.5 to v4.0	3.0	L		The ITA team will need to research and document compatibility issue between existing SFA applications and new version of WAS.	11/7/2001	10	WAS and IHS will work seamlessly. Applications will be able to use new features in new version.		

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109	IBM HTTP Server (IHS) Upgrade	All	Software - IBM HTTP Server	The ITA team shall upgrade IBM HTTP Server from v1.3.12 to v1.3.19	3.0	M		The ITA team will need to research and document compatibility issue between existing SFA applications and new version of IHS.	11/7/2001	10	WAS and IHS will work seamlessly. Applications will be able to use new features in new version.		
200	**Common Services**				3.0								
201	Simple Object Access Protocol (SOAP) Framework	All	Common Services - SOAP	The ITA 3.0 architecture shall provide a SOAP framework to enable web services.	3.0	M		SOAP is a lightweight protocol for exchange of information in a decentralized, distributed environment. It supports XML based request and response paradigm utilizing HTTP. The ITA 3.0 will provide an API to facilitate easy implementation of SOAP for application development.	11/7/2001	47			
202	Configuration Service	All	Common Services - Configuration	The ITA 3.0 architecture shall provide a Configuration framework.	3.0	M		The configuration framework will provide a standard for configuration file input. The configuration settings for an application will reside in a single implementation of the Configuration Manager. The framework will provide simplified configuration file reading. The mechanism for reading the configuration files should be abstracted into the architecture layer to avoid any duplicate file reading logic being written with the application code. The configuration framework will also abstract the representation of configuration files (the style in which they are written) so that if the files change formats, only the configuration framework will require coding changes – no coding changes will need to be made within the application or architecture code.	11/7/2001	29			
203	Web Conversation Framework	All	Common Services - Web Conversation	ITA 3.0 architecture shall provide a Web Conversation framework.	3.0	H		The ITA 3 Web Conversation Framework divides servlets into one or more conversations. Each conversation consists of a set of request/response exchanges to complete a single activity. Each conversation in turn is divided into one or more commands that represent a single request/response exchange between the client and server. Together these servlets, conversations, and commands map to classes for conversation, exchange activity, and exchange presentations that represent the heart of the ITA Web Conversation framework. The conversation class correlates commands with exchange activities and exchange presentations. The exchange activity class executes that business logic of the user requests. The exchange presentation class formulates and sends a response to the user.	11/7/2001	37			

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204	Session Management	All	Common Services - Session Management	The ITA 3.0 architecture shall provide a Session Management framework.	3.0	H		The ITA 3 Session Framework will be custom developed by the ITA 3 team to simplify, standardize, and extend the use of session information within the J2EE standard. The session wrapper class provides a common way to access session information, decouples session information from the request, session, and application J2EE contexts, and wraps WebSphere session extension classes. The Session utility class provides utilities for sessions that are common across enterprise applications, such as detecting whether a browser accepts cookies. The Session class for large sessions provides a best practices and higher performance implementation for applications requiring storage of large amounts of session information. The ITA 3 Session Framework will be integrated with the ITA 3 Servlet Framework for seamless use.	11/7/2001	39			
205	Extensible Markup Language (XML) Helper	All	Common Services - XML	The ITA 3.0 architecture shall provide a XML Helper framework.	3.0	H		The XML Helper framework will provide two functionalities. First, the XML framework will provide a parsing function for reading property files and setting up parameters for applications. Second, the framework will provide conversion function between XML and Java objects. With this framework, XML that describes a Java object can be constructed from the particular XML and a Java object can be mapped to a XML representation.	11/7/2001	28			
206	File Transfer Protocol Service	All	Common Services - FTP	The ITA 3.0 architecture shall provide a FTP framework.	3.0	L		The File Transfer Protocol (FTP) framework provides the ability to transfer files between different platforms in the SFA environment.	11/7/2001	47			
207	Universal Description, Discovery and Integration (UDDI)	All	Common Services - UDDI	The ITA 3.0 architecture shall provide a UDDI framework for web services	3.0	M		Universal Description, Discovery and Integration (UDDI) is a platform-independent, open framework for describing services, discovering businesses, and integrating business services using the Internet, as well as an operational registry that is available today. RCS UDDI framework is an API implementation. The framework will focus on registry publication service for web applications.	11/7/2001	49			
208	Scheduler Framework	All	Common Services - Scheduler	The ITA 3.0 architecture shall provide a Scheduler framework.	3.0	H		A Java based scheduler. The framework will provide the functionality of writing/activating batch programs based the system time.	11/7/2001	28			
209	JSP Tag Library	All	Common Services - JSP Tag Library	The ITA 3.0 architecture shall provide a JSP Tag Library framework.	3.0	L		JSP Tag library framework will provide application development teams with an extensive JSP Tag Library for supporting presentation layer. The framework will allow shorter development cycle.	11/7/2001	47			

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210	Object Pooling	All	Common Services - Object Pooling	The ITA 3.0 architecture shall provide a Object Pooling framework.	3.0	L		Object pooling allows the sharing of instantiated objects. Since different processes don't need to reinstantiate certain objects, there is no load time. And since the objects are returned to the pool, there is a reduction in garbage collection. The framework will allow application development teams to take advantage of object pooling to increase application performance.	11/7/2001	29			
211	WAS Timeout	All	Common Services - WAS Timeout	The ITA 3.0 architecture shall provide a WAS Timeout framework.	3.0	L		The timeout framework will supplement the basic WebSphere timeout services that allow for timeouts to be set for end-to-end transactions on a server level and transactions to JDBC datasources on a datasource level. The timeout framework will be built to utilize a pool of timers. The usage of the pool will allow applications to reuse timers and avoid repeatedly incurring the overhead associated with creating new threads each time an operation needs to be monitored for timeout. The configuration of the timer pool will be application independent and allow for multiple timeout intervals within an application. With this approach, an application can determine what is acceptable without having any knowledge of the application's timeout settings.	11/7/2001	30			

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300	**Best Practices and Coding Standards**				3.0								
301	SQL coding standards and best practices	All	Development Standards	ITA 3.0 architecture shall provide SQL coding standards to the application teams.	3.0	L		SQL coding standards guide can help developers construct high performance SQL statements and advise them when to use stored procedures or embedded SQL code.	11/7/2001	10			
302	Enterprise Java Bean Usage	All	Development Standards	ITA 3.0 architecture shall provide Enterprise Java Bean coding standards to the application teams.	3.0	L		ITA will research on Enterprise Java Beans coding standard and document the findings for the application development teams. A Enterprise Java Bean coding standard allows for consistency in development and easy maintenance. The guide is deemed important since application development teams are starting to implement Enterprise Java Beans in their applications.	11/7/2001	10			
303	SOAP Standards	All	Development Standards	ITA 3.0 architecture shall provide SOAP coding standards to the application teams.	3.0	L		The guide will provide a set of best practices to application development teams for building SOAP applications. Since SOAP implementation is going to be included in SFA applications in the near future, establishing a SFA standard for SOAP development is necessary for consistency.	11/7/2001	10			
304	UDDI Standards	All	Development Standards	ITA 3.0 architecture shall provide UDDI coding standards to the application teams.	3.0	L		The guide will provide a set of best practices to application development teams for building UDDI applications. Like SOAP, UDDI implementation is going to be included in SFA applications in the near future, establishing a SFA standard for UDDI development is necessary for consistency.	11/7/2001	10			
305	Usability Standards & Common Look and Feel Standards	All	Development Standards	ITA 3.0 architecture shall develop Application Usability & Common Look and feel Standards	3.0	L		The Application Usability & Common Look and Feel Standards will provide general guidelines for application architects and developers to create more user-friendly applications with a consistent look and feel to their users.	11/7/2001	10	The standards will be an update on previous release of the same set of standards.		
306	Application Performance Tuning	All	Development Standards	ITA 3.0 architecture shall develop Application Performance Tuning Guide	3.0	L		The application performance tuning guide will provide application development teams with tutorial and tips on application performance tuning. The guide can help application development teams to enhance their application performance in terms of memory management and application construction.	11/7/2001	10			
307	ITA Workshops	All	ITA	The ITA team shall host a series of workshops to educate application teams and raise awareness	3.0	L		The ITA team shall host work shops for knowledge transfer and training. ITA can also use such setting to communicate its services to application teams.	11/7/2001	Ongoing			
400	**Technical Architecture Reviews**				3.0								
401	Architecture Reviews	FAFSA 7.0	ITA Reviews	The ITA team shall participate in architecture review meetings with FAFSA 7.0.	3.0	M		The ITA team will participate in architecture review meetings with FAFSA. These meetings should continue until application goes live to provide an adequate amount of guidance and support of ITA 3.0	11/7/2001	5			

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402	Architecture Reviews	CBS2	ITA Reviews	The ITA team shall participate in architecture review meetings with CBS2.	3.0	M		The ITA team will participate in architecture review meetings with the CBS2. These meetings should continue until the application's launch to provide an adequate amount of guidance and support of ITA 3.0	11/7/2001	5			
403	Code Reviews	FAFSA 7.0	ITA Reviews	ITA shall participate in code reviews of FAFSA 7.0.	3.0	M		The code review will focus on conformance of ITA best practices rather than code construction.	11/7/2001	2			
404	Code Reviews	CBS2	ITA Reviews	ITA shall participate in code reviews of CBS2.	3.0	M		The code review will focus on conformance of ITA best practices rather than code construction.	11/7/2001	2			
405	Design Reviews	Portals	ITA Reviews	ITA shall participate in design review of Portals.	3.0	M		The ITA team will participate in design review meetings with the Portals teams. These meetings should continue until application launch to provide an adequate amount of guidance and support of ITA 3.0	11/7/2001	2			
406	Code Reviews	Portals	ITA Reviews	ITA shall participate in code review of Portals.	3.0	M		The code review will focus on conformance of ITA best practices rather than code construction.	11/7/2001	2			

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500	**Product Specialty Support**				3.0								
501	IBM WebSphere	All	Product Support	ITA shall provide product specialty support for IBM WebSphere.	3.0	M			11/7/2001	N/A			
502	IBM HTTP Server	All	Product Support	ITA shall provide product specialty support for IBM HTTP Server	3.0	M			11/7/2001	N/A			
503	Autonomy	All	Product Support	ITA shall provide product specialty support for Autonomy search engine	3.0	M			11/7/2001	N/A			
504	IBM Network Dispatcher	All	Product Support	ITA shall provide product specialty support for IBM Network Dispatcher/Edge Server	3.0	M			11/7/2001	N/A			
505	IBM Visual Age for Java	All	Product Support	ITA shall provide product specialty support for IBM Visual Age for Java	3.0	M			1/22/2002	N/A			
506	Viador	All	Product Support	ITA shall provide product specialty support for Viador	3.0	M			1/22/2002	N/A			
507	Interwoven	All	Product Support	ITA shall provide product specialty support for Interwoven	3.0	M			11/7/2001	N/A			
600	**Operations Support**				3.0								
601	Operations Scripts	All	Operations	The ITA 3.0 team shall create operations scripts to build application servers, update vhosts, and startup/shutdown the WAS server.	3.0	L		Scripts will be written in the WebSphere scripting language called wscp (available only in WAS 3.5). The common data format for all scripts will be XML. The WAS command line processor is tcl based scripting language to provide administrative command line scripts to control WAS. WSCP can build configurations, change configurations within	11/7/2001	10			
602	ITA Operation Maintenance	All	Operations	The ITA team shall provide technical architecture operation maintenance for SFA applications.	3.0	H		The ITA will monitor and maintain application servers to ensure application availability.	11/7/2001	Ongoing			
603	ITA Release 3.0 handbook	All	Operations Standards	The ITA 3.0 shall create a handbook for applications entering the ITA environment.	3.0	M		The handbook shall provide information and processes necessary for applications entering the ITA environment and platform.	11/7/2001	20			
604	Environment Scripts	All	Environments	The ITA 3.0 team shall provide procedures for application teams to build their own environments.	3.0	M		The implementation of this requirement may be through either documented procedures or automated scripts for creating standardized application environments. These procedures will cover the base installation. Custom configurations will be the responsibility of the application teams.	11/7/2001	10			
605	Service Level Agreement	All	ITA Standards	The ITA team shall develop Service Level Agreement (SLA)	3.0	M		ITA team shall develop Service Level Agreement procedures and document to provide ITA support to application teams.	11/7/2001	5			
606	Issue Tracking Database	All	ITA Standards	The ITA team shall create an issue tracking database.	3.0	M		The ITA team shall create an Issue tracking database for tracking application issue requests and resolutions.	11/7/2001	10			
607	Performance Enhancement Services	All	ITA	The ITA team shall provide performance enhancement services	3.0	M		The ITA team shall provide performance testing expertise, performance profiling, assistance in execution and sample test plans services.	11/7/2001	Ongoing			
608	ITA Scripting	All	ITA	The ITA team shall build the script to automate the repetitive tasks	3.0	M		The scripts will help application teams to automate repetitive tasks, create environments, and configure products.	11/7/2001	Ongoing			
700	**Documentation**				3.0								
701	Assessment Document		ITA	The ITA team shall develop deliverable 69.1.1 - ITA R2.0 Strategic Assessment	3.0	M			11/7/2001	10			
702	Requirement Matrix		ITA	The ITA team shall develop deliverable 69.1.2 - ITA R3.0 Requirements Tractability Matrix	3.0	M			11/7/2001	10			
703	Technical Specification		ITA	The ITA team shall develop deliverable 69.1.3 - ITA R3.0 Technical Specification	3.0	M			11/7/2001	10			
704	Build and Test Report		ITA	The ITA team shall develop deliverable 69.1.4 - ITA Release 3.0 Build and Test Report	3.0	M			11/7/2001	10			
705	ITA Best Practices Guide		ITA	The ITA team shall develop deliverable 69.1.5 - ITA Best Practices Guide	3.0	M			11/7/2001	10			
706	Quarterly Report		ITA	The ITA team shall develop deliverable 69.1.6 - Technical Architecture Services Report - 4Q01	3.0	M			11/7/2001	10			
707	Quarterly Report		ITA	The ITA team shall develop deliverable 69.1.7 - Technical Architecture Services Report - 1Q02	3.0	M			11/7/2001	10			

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708	Quarterly Report		ITA	The ITA team shall develop deliverable 69.1.8 - Technical Architecture Services Report - 2Q02	3.0	M			11/7/2001	10			
708	Quarterly Report		ITA	The ITA team shall develop deliverable 69.1.9 - Technical Architecture Services Report - 3Q02	3.0	M			11/7/2001	10			
708	ITA Quality Plan		ITA	The ITA team shall develop ITA Quality Plan	3.0	M			11/7/2001	10			
800	Testing				3.0								
801	JUnit	All	Unit testing	The ITA shall provide subject matter expertise for application teams on JUnit automated unit testing tool. All RCS frameworks shall also be tested by JUnit.	3.0	L			11/7/2001	Ongoing			
802	JProbe	All	Performance testing	The ITA shall provide application performance testing service for application teams. All RCS frameworks shall be tested by JProbe.	3.0	L			11/7/2001	Ongoing			
803	Web Stat Reporting tool	All	Web Stat reporting tool	The ITA team shall acquire and implement a better web stat reporting tool.	3.0	L		This task requires research, product comparison, and implementation of the web stat tool.	1/22/2002	Ongoing			
803	Load Testing	All	Performance testing	The ITA shall provide load testing service for applications.	3.0	M		Load testing tool needs to be determined.	11/7/2001	Ongoing			